

DESCRIPTION

Brightking's SDT23C712L02 component is designed for asymmetrical (12V to -7V) protection in multi-point data transmission standard RS-485 applications. The SDT23C712L02 may be used to protect devices from transient voltages resulting from electrostatic discharge (ESD), electrical fast transients (EFT), and lightning.

The SDT23C712L02 features 400W ($t_p=8/20\mu s$) of power handling capability to accommodate the higher transient voltage levels which may be expected in extended common mode applications.

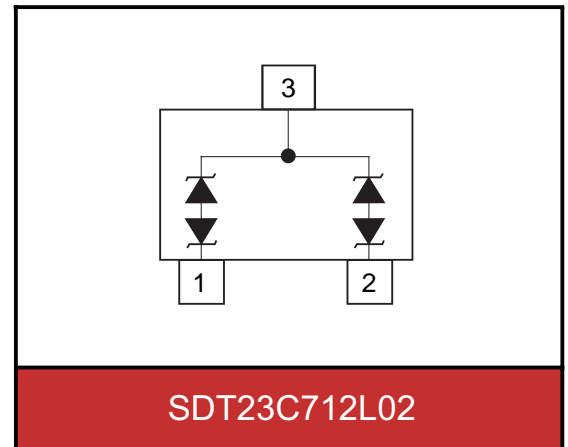


HBM : $\pm 8kV$
Air Mode : $\pm 15kV$



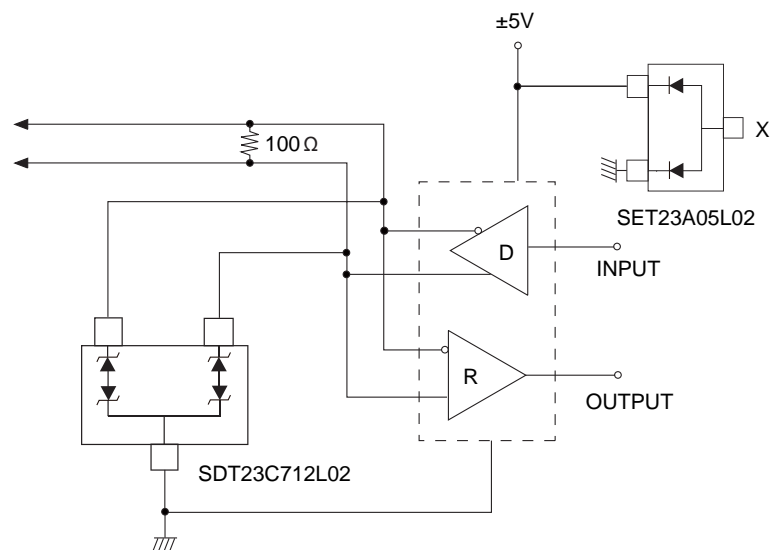
SPECIFICATION FEATURES

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- Small SOT-23 surface mount package
- Protects two +12V to -7V lines
- Peak power dissipation of 400W under 8/20 μs waveform
- Low leakage current
- Low clamping voltage
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260-270°C
- Flammability rating UL 94V-0



APPLICATIONS

- Protection of RS-485 transceiver with extended common-mode range
- Security Systems
- Automatic Teller Machines
- HFC Systems
- Networks



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak pulse power (tp=8/20μs waveform)	P _{pp}	400	W
ESD voltage (HBM contact)	V _{ESD}	±8	KV
ESD voltage (AIR contact)		±15	
Storage & operating temperature range	T _{STG} ,T _J	-55~+150	°C

ELECTRICAL CHARACTERISTICS (T_J=25°C)

SDT23C712L02 Pin1 to Pin3 and Pin2 to Pin3 (Marking: B 712)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				12	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	13.3			V
Reverse leakage current	I _R	V _R =12V			1	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =5A			20	V
Off state junction capacitance	C _J	0Vdc,f=1MHZ between I/O pins and GND			75	pF

SDT23C712L02 Pin3 to Pin1 and Pin3 to Pin2 (Marking: B 712)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				7	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	7.5			V
Reverse leakage current	I _R	V _R =7V			20	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =5A			10	V
Off state junction capacitance	C _J	0Vdc,f=1MHZ between I/O pins and GND			75	pF

TYPICAL CHARACTERISTICS CURVES

Figure 1. Power Derating Curve

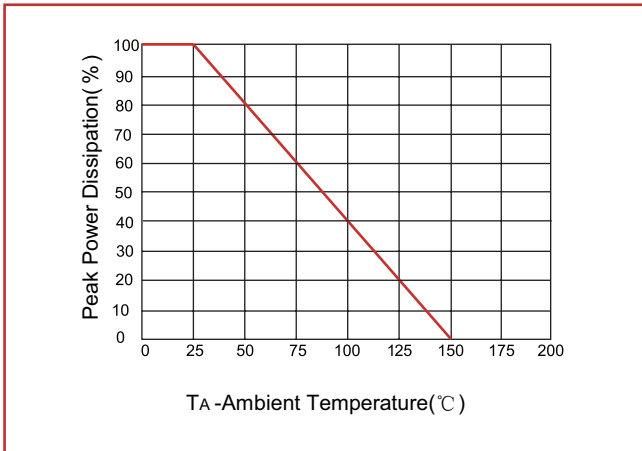


Figure 2. Pulse Waveforms

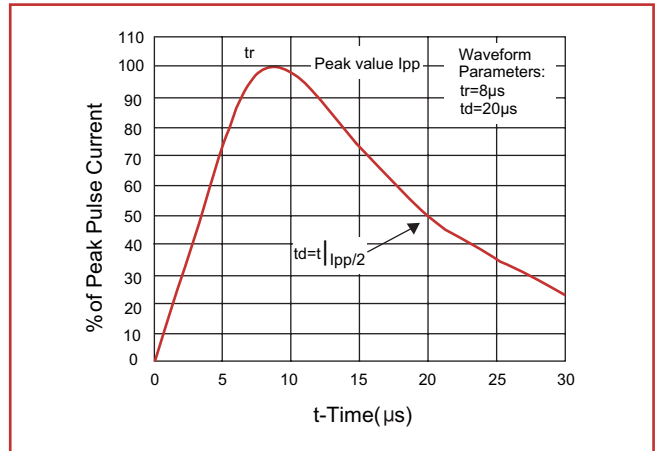


Figure 3. Non-Repetitive Peak Pulse vs Pulse Time

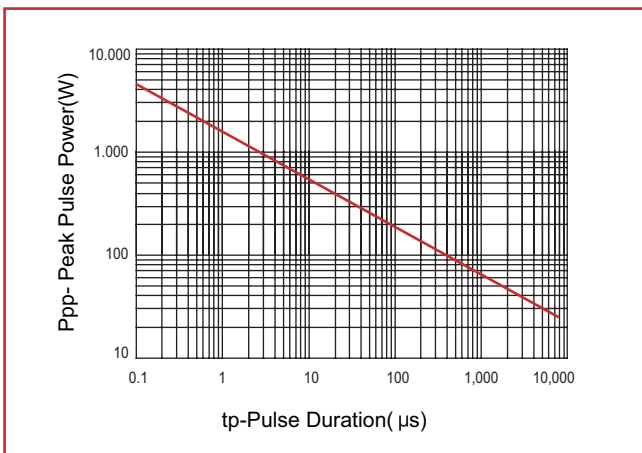
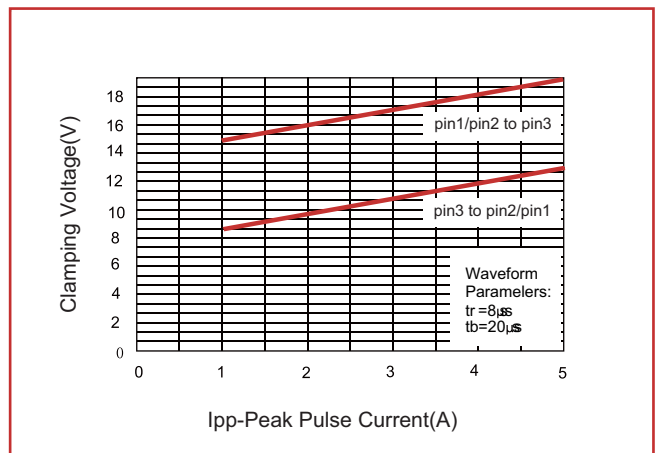
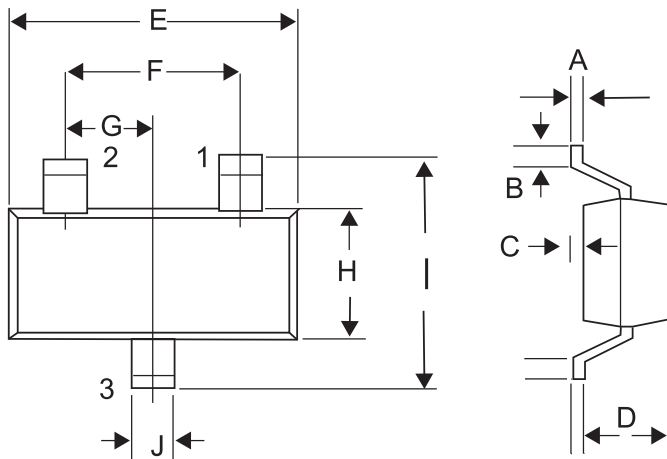


Figure 4. Clamping Voltage vs. Peak Pulse Current



PACKAGE AND SUGGESTED PAD LAYOUT DIMENSION

SOT-23(unit:mm)



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.043	0.89	1.09
E	0.110	0.120	2.80	3.05
F	0.075		1.90	
G	0.037		0.95	
H	0.047	0.055	1.19	1.40
I	0.083	0.098	2.10	2.49
J	0.014	0.020	0.35	0.50

